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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,114

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Geoff C. Gerhardt

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EXAMINER

PREGLER, SHARON

ART UNIT

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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,114	Applicant(s) GERHARDT ET AL.	
	Examiner Sharon Pregler	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/26/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of claims 1-61 in the reply filed on April 13, 2010 is acknowledged. The traversal is on the ground(s) that there is no technical relationship between the groups. This is found persuasive and the Restriction is withdrawn.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. ***Claims 1-61 are rejected under 35 U.S.C. 103(a) as being unpatentable by Shibamoto US Patent 5,672,810 (hereinafter "Shibamoto").***

4. **Regarding claims 1, 37, & 44 Shibamoto teaches** a device for impelling one or more fluids through an exit conduit comprising:

5. a housing (*main body 23, figure 1*) having a chamber (*inside chamber 23*) having a cylindrical wall, a first end wall and a second end wall (regarding claim 37), for receiving and/or holding one or more fluids under pressure and an exterior surface, and said housing having at least a first exit opening (*split flow line 28*), a first inlet opening (*injection port 11*), a second exit opening (*column 12*), and a second inlet opening (*carrier flow line 26*),

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each opening extending from said chamber to said exterior surface for receiving conduit means (*column 3 lines 1-35*);

6. a first exit conduit means (*split flow line 28*) received by said first exit opening in communication with said chamber for transporting fluids from said chamber out of said first exit opening, said first exit conduit means for connection with an analytical device (*connected with detector 13*);

7. a first inlet conduit means (*injection port 11 within septum 25, column 3 lines 5-20*) received by said first inlet opening in communication said chamber for transporting a first fluid into said chamber, said first inlet conduit means for connection to a first supply device;

8. a second inlet conduit means (*carrier line inlet 26, column 3 lines 22-25*) received by said second inlet opening in communication with said chamber for transporting a second fluid into said chamber, said second inlet means for connection with a second supply device;

9. a second exit conduit means (*column 12*) received by said second exit opening in communication with said chamber for transporting fluids from said chamber out of said second exit opening;

10. and at least one valve means (*control valve 34, column 25-35*) disposed in at least one of said first exit conduit means, said second exit conduit means and said second inlet conduit means, said valve means having a closed position wherein fluid is prevented from flowing through said valve means and an open position wherein said fluid is allowed to flow through said valve means, said valve means responsive to a signal to assume one of said positions (*inherent properties of valves, column 3 lines 25-38*);

11. wherein said chamber is for receiving fluid from each of said first inlet conduit means and said second inlet conduit means (*column 3 lines 5-25*), and for discharging fluid through said first exit conduit means and said second exit conduit means (*column 3 lines 25-35*).

12. Shibamoto does not explicitly teach a waste receptacle connected at the second exit conduit means; however it would have been obvious to one of ordinary skill in the art to put a waste receptacle at the end of an exit to capture ejected fluids.

13. Although Shibamoto teaches the apparatus for gas chromatography, gas is still classified as a fluid.

14. **Regarding claims 2 & 61, Shibamoto teaches the** device of claim 1 wherein said at least one valve means is a freeze-thaw valve (*heat control 41 inherently controls the fluid flow with temperature column 3 lines 39-47*).

15. **Regarding claims, 3-4, 13,** these claims are regarded as intended use and do not add weight to the apparatus claims. A recitation of the intended use of the claimed

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invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

16. **Regarding claim 5, Shibamoto teaches the** device of claim 1 further comprising a first exit conduit valve means (*control valve 34*) interposed in said first exit conduit means.

17. **Regarding claims 6, 7, & 56 Shibamoto teaches the** device of claim 5 wherein said first exit conduit means is a capillary having a first end (*junction of inner chamber 23 at exit valve opening 28, figure 1*) in said first exit opening, but does not teach a mid portion external to said housing, and a second end formed as a liquid chromatography column having an input end and an output end, wherein said first exit conduit valve means is disposed in said mid portion (regarding claim 6) and first end of said capillary extends into said chamber (regarding claim 7) wherein a tip of said first end of said capillary is positioned in said chamber between said second inlet opening and said second exit opening (regarding claim 8).

18. However it would have been obvious to extend the capillary of the exit conduit to fit further within the chamber to save space since the extension of the capillary performs the same function.

19. **Regarding claims 9, 36, & 43 Shibamoto teaches the** device above but does not explicitly teach wherein said capillary has an inner diameter between approximately 15 μm and 150 μm (regarding claim 9) or said vent conduit means has an inner diameter between approximately 25 μm and 150 μm (regarding claim 36) and wherein said second inlet and second exit openings accommodate a conduit means having an inner diameter between approximately 15 μm and 50 μm (regarding claim 42).

20. However it would have been obvious to one having ordinary skill in the art to use these dimensions for conduit means. Scaling up or down of an element which requires a change in size is generally considered as being within ordinary skill in the art. One would have been motivated to use the dimensions above to allow a desired amount of flow through the conduits.

21. **Regarding claims 10, 21, 20, 24-27, 32, 45, & 50** the ranges of the claimed pressures are well known in the art of high pressure chromatography. It would have been obvious to provide a pump or pumping means to direct fluid in the device.

22. **Regarding claim 11, Shibamoto teaches the** device of claim 1 further comprising a first supply device (*inherent through gas carrier 26*) connected to said first inlet conduit means, said first supply device having a supply state wherein said first fluid is supplied at a

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pressure up to a maximum pressure and a stop state wherein said first fluid is not supplied, said first supply device responsive to a supply signal to assume one of said states (*column 3 lines 1-25*).

23. **Regarding claim 12, Shibamoto teaches the** device of claim 11 further comprising a control means (*gas control unit 14*) for controlling each of said at least one valve means by sending a signal to said valve means to assume one of said open and closed positions (*column 3 lines 25-30*).

24. **Regarding claim 14, 15, 17-19, 46, 47, 49, 50, 52, 58-61 Shibamoto** does not explicitly teach said control means sends a supply signal to said first supply device to effect a supply state of the first supply device and sends one or more signals to said at least one valve means to effect a closed position of all conduit valve means for filling and pressurizing said chamber (regarding claim 14) said control means sends a supply signal to said first supply device to effect a stop state of said first supply device and sends one or more signals to said at least one valve means to effect a closed position of said first exit conduit valve means and an open position of said second inlet conduit valve means and said second exit conduit means for replacing a fluid in said chamber with said second fluid (regarding claim 15),

25. wherein said control means monitors said fluid at said second exit conduit for determining concentration (regarding claim 17),

26. wherein said control means sends a supply signal to said first supply device to effect a stop state of said first supply device and sends one or more signals to said at least one valve means to effect a closed position of said first exit valve means and said second inlet valve means and an open position of said second exit valve means for discharging fluid from said chamber (claim 18),

27. wherein said control means sends a supply signal to said first supply device to effect a supply state of said first supply device and sends one or more signals to said at least one valve means to effect a closed position of said second inlet valve means and said second exit valve means and an open position of said first exit valve means for impelling a pressurized fluid through said first exit conduit means (claim 19). (*column 3 lines 25-30*).

28. **Regarding claim 16, 51 & 53, Shibamoto teaches the** device of claim 13 further comprising a fluid monitor (*system control 16*) for monitoring a fluid passing through said second exit conduit means for providing said control means with information about the composition of the fluid exiting said chamber.

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29. **Regarding claim 19, Shibamoto teaches the** device of claim 13 wherein said control means (*gas control unit 14*) sends a supply signal to said first supply device to effect a supply state of said first supply device and sends one or more signals to said at least one valve means to effect a closed position of said second inlet valve means and said second exit valve means and an open position of said first exit valve means for impelling a pressurized fluid through said first exit conduit means.

30. **Regarding claim 28, 29, & 30 Shibamoto teaches** device of claim 1 but does not teach a second exit conduit valve means interposed in said second exit conduit means, comprising a second inlet conduit valve means interposed in said second inlet conduit means, a second fluid source connected to said second inlet conduit valve for supplying said second fluid.. However, Shibamoto teaches a valve 34 and therefore would have been obvious to add a valve at the second exit conduit to control flow. (*Figure 1, column 3 lines 25-35*).

31. **Regarding claim 31, Shibamoto teaches the** device of claim 1 but does not explicitly teach at least one fitting disposed between an opening and its associated conduit means, for forming a fluid-tight seal between said opening and associated conduit means and for retaining said associated conduit means in said opening when said pressure in said chamber is elevated.

32. However, fittings are well known in the art of high pressure chromatographic apparatus, and would therefore be obvious to add fittings to junctions of the apparatus above to seal the components and prevent leakage.

33. **Regarding claim 33, Shibamoto teaches** the device of claim 31 further comprising:

34. a vent opening (*purge flow line 27, column 3 line 26*) in said housing extending from said chamber to said exterior surface for receiving a vent conduit means;

35. and a vent conduit means (*channel in figure 1*) received by said vent opening in communication with said chamber for transporting fluids from said chamber out of said vent opening, said vent conduit means for connection with a vent conduit valve means (*column 3 lines 18-26*).

36. **Regarding claim 34, Shibamoto teaches** the device of claim 33 further comprising a vent conduit valve means interposed in said vent conduit means having an open position wherein fluid is allowed to flow through said vent conduit valve means and a closed position wherein fluid is prevented from flowing through said vent conduit valve

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means, and wherein said vent conduit valve means is responsive to a signal to assume one of said positions (*figure 1*).

37. **Regarding claim 35, Shibamoto teaches** the device of claim 34 wherein said control means sends a supply signal to said first supply device to effect a stop state of said first supply device and sends one or more signals to said at least one valve means to effect a closed position of said first exit valve means and said second inlet conduit valve means and an open position for said second exit conduit valve means and said vent conduit valve means for discharging fluid from said chamber (*figure 1*).

38. **Regarding claims 37 & 38, Shibamoto teaches** the device of above wherein said first inlet opening is positioned in one of the walls selected from said first and second end walls and said first exit opening is positioned in the other wall selected from said first and second end walls second inlet opening is positioned through said cylindrical wall proximate said first exit opening and said second exit opening is positioned through said cylindrical wall proximate said first inlet opening (*figure 1*).

39. **Regarding claim 40, Shibamoto teaches** the device of claim 39 wherein said vent (*purge flow line 27, column 3 line 26*) opening is positioned through said cylindrical wall approximately diametrically opposite said second input opening (*Figure 1*).

40. **Regarding claim 41 & 42, Shibamoto teaches** the device of above but does not explicitly teach the housing comprises an inert material is stainless steel or titanium. However these materials are well known in the art of chromatography apparatuses for its durability and chemical inertness.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon Pregler whose telephone number is (571)270-5051. The examiner can normally be reached on Mon - Fri 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sharon Pregler/
Examiner, Art Unit 1797

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797